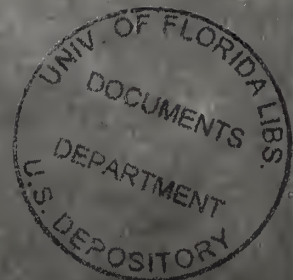


AMC SAFETY DIGEST

D101.22/3;

385-93



AMCP 385-93

JANUARY 1970

THE WHITE HOUSE

WASHINGTON

October 24, 1969

MEMORANDUM FOR THE HEADS OF
EXECUTIVE DEPARTMENTS AND AGENCIES

The purpose of the Safety Policy for the Federal government forwarded with this memorandum is to give necessary direction for a unified effort to eliminate accidents among Federal government employees. I intend to give my full support to the government-wide safety program and I trust that you will do so in the area of your responsibility.

Richard Nixon



THE WHITE HOUSE

WASHINGTON

October 24, 1969



SAFETY POLICY FOR THE FEDERAL GOVERNMENT

The human suffering and economic waste caused by accidents are principal concerns of this Administration. Federal, civil and military personnel and the public must be protected; governmental programs must be efficiently run. These two goals can best be realized by a unified, dedicated and on-going program of accident elimination in government.

We are making progress in this area. In 1965 when Mission SAFETY-70 was begun, the disabling injury frequency rate was 7.7. The rate for 1968 was 6.9, a three percent improvement over the previous year and an overall 10.4 percent improvement. Through this effort an estimated \$12,210,000 was saved and 16,200 disabling injuries were prevented.

There is still great progress to be made. Department or agency heads play a major role in the elimination of accidents. If a department or agency has an effective program in this area, it should be continued; if it does not have an adequate program, one should be developed; if the program needs the necessary resources to make it effective, resources should be provided. Everyone in a department or agency should know that a safety program is effective only to the degree that it is supported and participated in by employees.

In a united effort, the Federal government will work with labor unions representing government employees, with State and local governments and with appropriate safety organizations in developing and applying sound accident prevention principles and practices.

The Secretary of Labor is directed to advise me annually, and at such other times as he deems appropriate, of the actions taken and the progress made by each agency.

Richard Nixon



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**HEADQUARTERS
UNITED STATES ARMY MATERIEL COMMAND
WASHINGTON, D.C. 20315**

JANUARY 1970

AMC PAMPHLET
Number 385 - 93

The Safety Digest is an AMC Pamphlet prepared by the Safety Division, Headquarters, U. S. Army Materiel Command. Its purpose is to disseminate information which can materially influence and improve safety programs at all Command establishments.

Articles are included to supplement technical knowledge as well as practical knowledge gained through experience. They provide a basis for the further refinement of safety measures already incorporated in operating procedures and process layout. To achieve maximum effectiveness, the Safety Digest should be given widespread circulation at each AMC establishment.

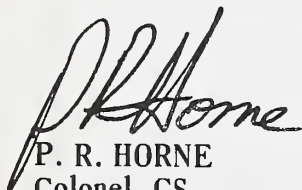
Articles appearing in the Safety Digest are unclassified and are not copyrighted. They may be reproduced as desired in order to bring pertinent accident prevention information to the attention of all employees. The Army Materiel Command Safety Digest should be given a credit line when articles are extracted.

Unclassified material believed to be of interest or benefit to other establishments is welcome for publication in the Safety Digest. Please send articles for review to: U. S. Army Materiel Command Field Safety Agency, Charlestown, Indiana. If possible, include pictures, charts, drawings, and illustrations that clarify and heighten interest in your presentation.

AMCSF

FOR THE COMMANDER:

LEO B. JONES
Major General, USA
Chief of Staff



P. R. HORNE
Colonel, GS
Chief, Administrative Office

Special Distribution



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NOMINATIONS FOR NATIONAL SAFETY COUNCIL FY1969 AWARDS

The listed commands, installations and activities have been nominated by this Command for the following NSC FY1969 safety awards. AMC personnel are congratulated for continued support of the AMC safety program.

AWARDS OF HONOR

Lima Army Modification Center
Procurement and Production Directorate, US Army Electronics
Command
US Army Materiel Command Aberdeen Research & Development
Center
Headquarters Staff, US Army Missile Command
US Army Aeronautical Depot Maintenance Center
Lake City Army Ammunition Plant
Cleveland Army Tank-Automotive Plant
Joint Military Packaging Training Center
Tobyhanna Army Depot
US Army Electronics Command
US Army Tank-Automotive Command

AWARDS OF MERIT

Jefferson Proving Ground
Army Materials and Mechanics Research Center
US Army Weapons Command
US Army Logistics Management Center
Sacramento Army Depot
Lawndale Army Missile Plant
Ft. Detrick
Rohm and Haas Company, Redstone Arsenal, Research Division
Pueblo Army Depot
Anniston Army Depot
Rock Island Arsenal
US Army Artillery Board
Savanna Army Depot
Milan Army Ammunition Plant
US Army Mobility Equipment Command
White Sands Missile Range
Research and Development Directorate, US Army Electronics Command
Natick Laboratories
Twin Cities Army Ammunition Plant .
Fort Wingate Army Depot

RADIOACTIVE ISOTOPES - SAFETY PROCEDURES

Dr. A. H. Werkheiser
Radiation Physics Branch
Physical Sciences Laboratory, R & E
U. S. Army Missile Command

Just the presence of radioactive isotopes in the laboratory or shop is usually enough to make the ordinary person cautious - at first. When long-lived isotopes are stored for a considerable time and used periodically, a procedure for their safe use must be ingrained into all concerned so that safe practices are a habit. Certainly such safe practices are greatly facilitated if the storage of isotopes provides accessibility without sacrificing safety.

We of our laboratory require numerous gamma-ray sources for energy calibration of instruments. Such calibration sources need not have a particularly high level of activity, and this in turn means that storage is not too much of a problem. One-to-ten-microcurie sealed gamma-ray sources are not particularly dangerous in ordinary, everyday usage and special precautions required are few. This in itself is dangerous because the average user gets lulled into a sense of complacency. Also, if more than one person uses the sources, you may be sure that some radioactive isotopes will be misplaced or lost. What is required is a means of affixing responsibility for each source while it is being used.

The photograph shows our means of coping with the particular problem of responsibility while maintaining accessibility, all within the realm of safe procedures. The first two rows of pigeon-holes are labeled compartments for each of the one-microcurie sources at hand.

The ten-microcurie sources, while not dangerous in themselves, may be unsafe when the entire aggregation of sources is considered. Thus, any sealed source of ten microcuries or larger is stored in the slanted shelves in specially designed containers, each made from one-half of a standard lead brick.



With all shelves filled, the activity as measured by a survey meter one foot from the shelf is less than 2.5 mr/hr. Accessibility is only slightly decreased and responsibility is affixed by use of color coded tags. Each user is assigned a tag color. When sources are used, a tag of the appropriate color is put in their place. The photograph shows three sources being used. The lead containers are left open and a tag left in place of the source when the radioactive isotope is taken. For the weaker sources the tag is hung on a nail over the pigeon-hole from which the source has been removed. The spare tags are grouped according to color and hung on nails on the side of the shelf.

Certainly this arrangement does not solve all the problems associated with storing and using sealed, radioactive sources, but, with a modest effort on the part of those concerned, many of the standard problems are greatly reduced.

ARMY MATERIALS AND MECHANICS RESEARCH CENTER ACHIEVES 3,000,000 INJURY-FREE MAN-HOURS



A proud accomplishment for the Army Materials and Mechanics Research Center in Watertown, Massachusetts, is pointed out by Sidney Levin, Supervisory Industrial Hygienist, and LTC Joseph B. Mason, Deputy Director and Commanding Officer, AMMRC. The Center worked 799 days, or 3,000,000 man-hours, without experiencing a disabling injury. Mr. Levin recently received national recognition by being selected for the Executive Committee, Research and Development Section, of the National Safety Council.

GENERAL MANAGER SECURES SAFETY RESULTS

R. L. Bent and C. A. Barr
Safety Department, Sperry Rand Corporation
Louisiana Army Ammunition Plant

A few months ago the Safety Department's analysis of accident experience throughout the plant indicated that first line supervisors should take more positive action to eliminate accidents. As a result, the General Manager initiated a program of holding meetings with small groups of first line supervisors for the purpose of discussing common safety problems and giving the opportunity to first line supervisors to make comments and suggestions for safety improvements.

A Safety Department representative opens the meeting with a presentation of pertinent statistical data comparing the plant's position, safety-wise, to other Army ammunition plants with similar type operations. It contains a breakdown of first aid injuries within the major areas. The corporate safety policy and the basic responsibilities of supervisors for safety are also stated. Upon completion of this presentation the group is addressed by the General Manager. In the words of the General Manager, these meetings serve several purposes. "First, it gives me the opportunity to meet each of you personally. Second, it permits me to hear from each of you the approach you use in getting the safety message across."

The response to the General Manager's comments has been enthusiastic. All of the supervisors have participated in discussions of the various methods being used, or recommended to be used, to improve safety in the various areas. Subsequent interviews with these individuals indicate that all were favorably impressed by having the opportunity to discuss safety matters with the General Manager in an informal, person-to-person manner.

As a result of the first meetings, three basic facts become readily apparent.

First, the supervisor must prepare for the time which is devoted exclusively to safety in order to insure an effective contact with the individuals or group.

Second, the supervisor must constantly set a good example by approaching each job with consideration of safety for himself, for those whom he supervises, and others who may be affected, directly or indirectly, by the action. This demands the development of a genuine, positive, safety attitude, perhaps one of the most important qualities of a good first line supervisor.

Third, each supervisor must call an unsafe act to the offender's attention the first time he observes it and insist the person does not commit the unsafe act again. By doing this he will make a sound contribution to fulfilling his responsibility of insuring that his employees are properly safeguarded against injury.

The program appears to be quite successful and to have had a positive impact on the reduction of injuries. During the first three months of this program, no disabling injuries were experienced in any of the areas that were represented by the supervisors who met with the General Manager. In addition, first aid injuries have been reduced to 45 per cent of the number experienced in the same area and the same period during the preceding year. It is believed that obtaining the wholehearted support of first line supervisors has been a major contributing factor toward this noteworthy improvement.

FIRE PREVENTION DISPLAYS



Photo 1

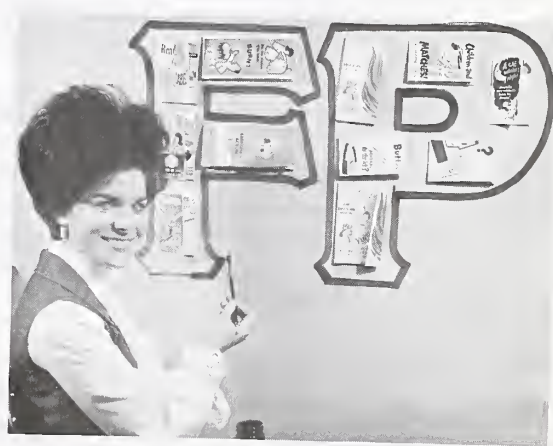


Photo 2

Shown here are two of the eye-catching displays used to publicize fire prevention at Louisiana Army Ammunition Plant. These were used during the 1969 Fire Prevention Week. The program was a joint effort by representatives of the Army and the plant's operating contractor, the Sperry Rand Corporation.

* * * *

LOOK AT YOUR NON-ARMY MOTOR VEHICLE ACCIDENTS

Installations that have sizeable complements of Active Army personnel often find that non-Army motor vehicle accidents are their No. 1 military injury problem.

Safety personnel at Aberdeen Proving Ground developed the following questions and answers when they reviewed records of 30 Active Army disabling injuries in non-Army motor vehicle accidents.

Q. What were the ages of the victims?

A. 18-24 ----- 21
25-28 ----- 5
29-up ----- 4

Q. What was the condition of the driver?

A. Fatigued ----- 19
Intoxicated --- 4
Other ----- 7

Q. What were the primary causes for the accidents?

A. Speed ----- 14
Drowsiness ----- 5
Failure to Yield Right of Way -- 2
Mechanical Failure ----- 1 (blowout)
Alcohol ----- 4

Q. On what day of the week did the accidents occur?

A. Sunday ----- 6
Monday ----- 4
Tuesday ----- 2
Wednesday ----- 2
Thursday ----- 4
Friday ----- 6
Saturday ----- 6

Q. During what hours did the accidents occur?

A. 0001-0700 ----- 21
0700-1700 ----- 9 Hours of darkness versus
 hours of daylight

Q. What was the rank of the injured personnel?

A. Private ----- 7
PFC ----- 3
SP4 ----- 7
SP5 ----- 7
E6 ----- 4
E7 ----- 1
Officer ----- 1

Q. Were the vehicles equipped with seat belts?

A. No ----- 25 (not equipped or not used)
Yes ----- 5 (were in use)

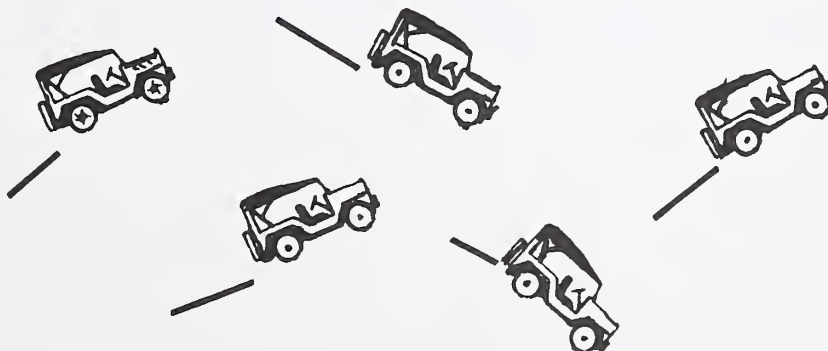
Q. What was the road condition?

A. Good ----- 24
Wet ----- 6

Q. Where did the accidents occur?

A. On Post ----- 2
Within 40 miles of post ----- 13
More than 40 miles from post ---- 15

What is your reaction? The facts as presented should help the military supervisor to recognize and apply measures that should help prevent non-Army motor vehicle accidents.



FOD IS A FINK!

Clyde P. Wilson, Aircraft Pilot, Army Aviation Division
White Sands Missile Range

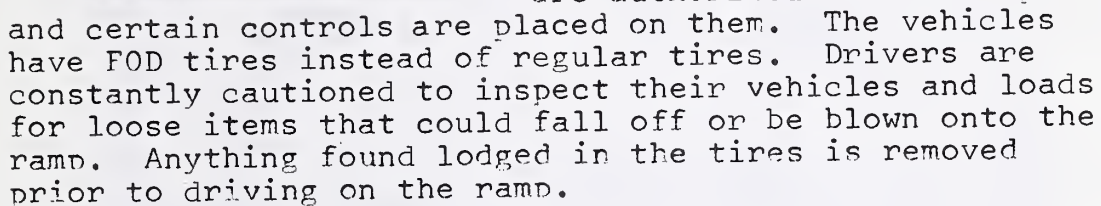
FOD is a killer! FOD is foolish! FOD is many other things and you can add your own words of comparison as to what you think FOD is.

"FOD"--Foreign Object Damage--is surely one of the major problems today in any aviation unit. The Army Aviation Division of the White Sands Missile Range, New Mexico, with duty station at Holloman Air Force Base, New Mexico, is certainly no exception. Shown at right in photo is SSG Decker, Line Chief of the Division, contemplating disposal of a tumbleweed in one of the FOD cans placed at several locations along the parking ramp.



SSG Decker was recently assigned the project of improving the FOD situation of the ramp where the division parks its 14 assigned and 15 contracted aircraft. The situation was something less than ideal. The division had recently lost an engine due to FOD. Approximately 175 aircraft (conventional, helicopter and jet) operate from Holloman AFB. A jet aircraft unit shares the same ramp as the division. The strong prevailing wind blows sand from the famed White Sands National Monument onto the area almost continuously. An estimated 40 tires a month are damaged at Holloman AFB due to FOD. Considering the strong winds, jet blasts and helicopter rotor wash, many items of potential FOD are habitually being blown around until they are recovered or possibly sucked into an engine. SSG Decker is determined to recover the items. Among the many items he has recovered on the ramp are nuts, bolts, screws, washers, wire, nails, rocks, plastic, cloth, pins, wood, aircraft parts, tin cans, tape, vegetation, cleaning equipment, fuses, parachute parts, insects, snakes, and you name it. Anything that can be moved by any means can be and will be found in, on, and near the aircraft.

when they are needed. SSG Decker has a wide assortment of the smaller items that he has collected on the ramp posted on a FOD chart which is located in the maintenance office for maximum publicity.



and certain controls are placed on them. The vehicles have FOD tires instead of regular tires. Drivers are constantly cautioned to inspect their vehicles and loads for loose items that could fall off or be blown onto the ramp. Anything found lodged in the tires is removed prior to driving on the ramp.

SSG Decker utilizes all available facilities at Holloman AFB to assist him as much as possible. He obtains the ramp sweeper and an operator regularly sweeps the ramp, picking up dirt and other items of debris that may not be easily seen by the men. He receives a lot of information and suggestions on other units' FOD problems by receiving a copy of the Holloman AFB FOD Monitor's Inspection. The division's aviation safety officer is a member of the Holloman AFB FOD council and SSG Decker works closely with him on other matters of safety as well as FOD control. Conversations with the pilots and NCOs of the division provide FOD experiences learned in previous assignments.

The White Sands Missile Range's FOD program is an aggressive program with noticeably encouraging results. The personnel of the division are FOD conscious and no program can be successful without such awareness. Although FOD control is a neverending problem, the White Sands Missile Range Aviation Division personnel strive to KNOCKOUT F O D -- THE FINK!

AVLABS FLIGHT OPERATIONS BRANCH

SAFETY RECORD RECOGNIZED



The Flight Operations Branch, Support Office, US Army Aviation Materiel Laboratories (AVLABS) recently achieved five consecutive years without a recordable accident. In the photo above Colonel John R. Adie, Commanding Officer, is shown presenting an AVLABS safety award plaque to Mr. James J. Fetzner, AVLABS Safety Officer. Not shown is CW03 David M. Shanklin, AVLABS Aviation Safety Officer and Chief of the Flight Operations Branch.

SOME DAY YOU GOTTA GO

Frank J. Marcotte, Chief Pilot, Umatilla Army Depot

Back to civilian life that is. To some it comes by retirement, to others its the end of the hitch. To the retirees it can be a time of trepidation and of entering into a relatively unknown future. To the others it means leaving the relatively unknown and joyfully entering the known.

Apparently from the near-misses, many a bird jockey lately has neglected to uncage his eye balls as he cruises around either fretting about or anticipating leaving the land of "OD" for the land of the free. In the ancient days, in WW II, talk of the last mission before returning "Stateside" was superstitiously avoided. The log was closed for many who were day dreaming of home, or finally Dear Johned by Miss Luck.

In this enlightened age the low stratus in the crystal ball can be dissipated by filing a plan for the future in the VIP's (very important papers) that go where you go. Once filled and filed the every day tasks to insure your having a future can be concentrated upon.

DD Form 175 is as ideally suited to plan your life as it is to plan your flight. Such a life-plan may take more thought and time, but once accomplished, on the ground, your time in the air can be more safely spent watch-dogging for other aircraft.

"Home Station". For a change, you pick it and are not assigned. It can be anything and anywhere you want. You have to have roots so find your plot and plant them.

Serial No.? Your own. Its yours for life.

Better go VFR on this trip. You have to be able to see and avoid the many high obstacles and low pitfalls that will be encountered enroute.

Remember the area code when you list the radio call.

For the T D Code, Count your blessings. Obviously, special qualifications were necessary to enable you to reach your present status. List them all. What may seem trivial to you might be just the qualifier for the extravagantly paid position that is your due.

True airspeed depends on how quickly you want to reach your destination. The young have more time and should go the college route. The balding and grey fringed had better open throttles and get in safely before the old fusilage succumbs to fatigue.

Proposed departure time is now. NOW is the time to plan for the take-off into the future. Time, like the runway left behind on an intersection T/O can never be used again. Use it all. There is precious little of it.

Plan your cruising altitude for maximum high. Your trip will be at cruise until you have to descend to your final landing. Get the most out of your equipment. Aim high and if you find later that the super chargers are "inop", you can settle for a lower altitude.

POINT OF DEPARTURE, ROUTE OF FLIGHT, TO, and ETE are as individualized as are the filers of the flight plan. That it is a one way trip is the point to remember. Take the most advantageous and gratifying route.

Under remarks it might be noted, a fact that seems generally unknown to Service flying types, that the Civil Service, both State and Federal, has many openings for flying personnel. Aircraft being utilized range from the big four engine jets to helicopters to small single engine puddle jumpers. There is no written examination. Only an application, a pilots certificate and a statement of flying time is needed.

The applicability of the remaining blocks is dependent on each individual filer. But the CREW/PASSENGER LIST, whether aboard now or in the future, is of paramount importance. For they are the ultimate reason for the plan for the flight into the future.

Good luck, have a safe and happy flight.





LANDINGS - FAST OR SLOW?



CW2 Chester R. Hall
Safety Officer Redstone Arsenal AAF

At what airspeed should a proper landing be made? Every pilot has his own opinion on this subject and plans his touchdown accordingly. After a careful study of the facts at hand, and some minor research, I have arrived at the following conclusions.

Full stall landings often tend to terminate with a bump or two, jarring the airframe and the passengers and raising eyebrows here and there in that area immediately behind the cockpit. Perhaps even raising the question in the passenger's mind if he should not have taken that commercial flight after all. So the thing to do is to increase the airspeed by fifteen or twenty knots and "grease it on in". Right? Wrong.

The best speed at touchdown, from the standpoint of wear and tear on the aircraft, is the slowest possible speed at which the machine can be controlled. In Army aircraft, this airspeed will generally occur at or very near the stall speed, with the possible exception of extenuating circumstances such as an extremely gusty surface condition.

The reason for this is that a tremendous amount of shock is absorbed by the landing gear every time you land. Eventually, selected components of the gear will wear out and have to be replaced. This is normal, but why contribute your small part to premature gear failure?

The first and most obvious target for wear is the wheel and tire. One second the tire is hanging free and easy. The next second it accepts the instantaneous burden of thousands of pounds of aluminum, steel, and corpuscles hurtling down the runway at seventy or eighty knots. Rubber tears away and bearing loads are intense as the wheel and tire accelerate to match the speed of the aircraft. Wheel and tire wear increase as the square of the speed. Therefore, a slight increase in touchdown speed will result in a large increase in wear, especially in the tire and wheel bearings.

While the wheel and tire are coming up to speed, the landing gear strut bends backward. This causes what is known as "wheel spin-up load". Once again, this load increases as the square of the speed. The strut itself may hold up very well under the strain, but the structure to which it is attached may not. There is one case on record

in which a cracked main wing spar was attributed to repeated fast landings. The crack was discovered only after the spar failed in flight. Extended calculation and research confirmed my suspicion that this would substantially reduce the effective glide ratio. In fact, the aerodynamic characteristics of an aircraft in this configuration would closely resemble that of a streamlined anvil. "Nuff said."

The final point worth mentioning is that a full stall or near stall landing greatly reduces the possibility of a nosewheel-first or nosewheel-at-the-same-time touchdown. This type landing can impose near-critical loads on the nosewheel strut, nosewheel tire and bearings, and shimmy dampener and can lead to "wheelbarrowing", in that the aircraft rides up on the nosewheel, becoming extremely difficult or impossible to control.

All facts considered, it appears readily apparent that it would behoove each of us to slow our landings as much as possible, thereby reducing wear and reducing the possibility of premature structural failure.

DRIVERS RECOGNIZED FOR 193 YEARS OF ACCIDENT-FREE DRIVING

Colonel Thomas B. Mahone, Jr., Commanding Officer, New Cumberland Army Depot, has presented National Safety Council Safe Driver Awards to seven depot employees. Driver

Shown left to right:

John J. Moore, Wayne H. Yinger, Ronald L. Bettinger, Charles E. Wire, Chief of Gurads, Narmal Smith, Safety Director, Colonel Mahone, Fredrick H. Urich, Merle E. Stoner, Louis J. Langerio. (Drivers not available for the photograph were:

Rudolph J. Annibali, Roland O. Bissonnette, Harry L. Brandt, Ernest M. Clay, Allen E. Kepner, Mervin Reber, Joseph M. Straley,

Donald C. Weirich.) These employees have accumulated 193 years of driving without a preventable accident.





AIRCRAFT STARTING AND GROUND OPERATION



Dale L. Leavitt, ADCS, USN
Flight Test Division, MASDC
"Safety Tips", Hq, AFLC Aerospace Safety

How much thought have you given lately to the relatively simple task of standing fireguard during engine starts and ground runs? Many costly accidents, including loss of life and estroyed aircraft, result from failure to follow safe procedures. Supervisors should frequently evaluate the knowledge of persons required to perform the following tasks:

1. Placing and removal of wheel chocks before and after engine start.
2. Proper fireguard standby position, generally to the rear and side of the engine.
3. Operators permit on all required ground equipment.
4. Proper positioning and removal of ground power and starting units.
5. Operation and use of all flight line fire extinguishers.
6. Knowledge and use of proper voice and hand signals between cockpit and ground crew.
7. Cockpit checklist use by rated pilots and qualified ground crew personnel.
8. Other extraordinary precautions and procedures peculiar to your type of aircraft.

Accident prevention requires before-the-fact action. The time and effort required to review the above will pay off and you can have the assurance that your personnel have been well indoctrinated on the hazards of aircraft starting and ground operations.





CHEATING DEATH



CW4 Henry A. Powell, Safety Officer
USAAVNTBD, Ft Rucker, Ala

"So you cheated death again," laughed Sam as he and Jim met for a beer in the club after the day's flight. This had been a longstanding joke among the old-timer pilots of the Bengals.

The Bengals were a darned good outfit and proclaimed it loudly, both at the bar and by virtue of a 9000 hour-accident free flying record. Jim was proud of his outfit and real proud of the flying record as he was the Safety Officer. To him "cheating death" was no joke.

Jim was due to return to the good old USA in just 28 days for a joyful reunion with his family and friends. It had not been easy during the eleven months and 971 combat hours that were now behind him.

Sam was a young pilot, but a good one -- dedicated to duty, and had a high regard for Jim, who was considerably senior as a pilot and in age.

"Yeah, we both cheated death again," said Jim as he mentally relived the past year that the two had been together. Why were they there, talking over the old war stories?

"Sam," said Jim, clapping his hand on his young friend's shoulder, "You may think of it as cheating death. I like to think of it as causing safety to happen. You may have heard the expression 'accidents don't just happen -- they are caused.' The same may be said for safety -- it doesn't just happen -- it is caused."

"How do you figure that?" asked Sam.

Jim reflected for a moment trying to select the right words.

"Very few people ever live their entire life without breaking a bone or getting hurt in some way or another. When you were a kid, you fell and skinned your knee -- you remembered it. Whether you realized it or not -- you were developing a small part of your attitude toward safety that you have today. As you grew older -- you learned to identify potential hazards and do something to prevent

them from hurting you or someone else."

"Gee, I never thought of it like that before," said Sam. "Tell me more."

"OK," said Jim, warming to the subject. "As normal human beings, we are all given to making mistakes. That's why erasers are put on pencils. Some mistakes are simple to correct. Others are not. Your attitude toward safety governs the number of mistakes that you made. Whether you are flying an airplane or taking a shower in your bathtub, you should always be aware of your own limitations and existing potential hazards."

"I see what you mean," said Sam, "but there are some of these hazards that we can't possible foresee."

"This is true," said Jim, "but we can minimize these by doing things in the safest possible manner. Try to think of it as giving yourself an alternative or a way out, no matter what suddenly pops up."

"You know," said Sam, "I have always tried to do things in a safe manner, but didn't realize why until now. Those guys who take unnecessary chances are really stacking the deck against themselves."

"Yep, that's about the size of it," said Jim. "Those guys are always around, but not for long. They sometimes make it if they live long enough to wise up."

"Hey, Joe, how about two more beers," called Sam. "This one's on me."

Now Jim had time to think about what he had said. Attitudes toward safety are formed in your childhood. No one is accident prone unless you are homegrown that way. The situations in which you allow yourself to become involved are of your own making. There are certain things that a man has to do, but there are some others that he feels compelled to do that are not really necessary. Why? Who knows?



TECOM RECOGNIZES ARMY AVIATORS FOR SAFE FLYING

From the left: COL Johnson, LTC Wood, LTC Ziek, GEN Izenour, LTC Humes, LTC Leach and LTC Dorr. MAJ Eakley was not available for the picture session.



Top honors for aviation safety were awarded recently to these seven Army Aviators of Headquarters, US Army Test and Evaluation Command.

This elite group is credited with logging a total of 25,000 hours of accident-free flying time. They were cited for operating fixed and rotary wing aircraft under all flight conditions without damage to aircraft or injury to personnel.

Recognition of unit and individual achievement in promoting flying safety throughout the command is an important part of the TECOM Aviation Safety Program. Aviators who accumulate 2,000 hours of accident- and incident-free flying time qualify for the individual TECOM Aviation Safety Award.

Certificates were presented by MG Frank M. Izenour, Commanding General of the Test and Evaluation Command, to the following officers: COL Raymond E. Johnson, Director of the Aviation Materiel Testing Directorate, who logged 6,700 hours; LTC Bertram G. Leach, Systems Test Managers Office (Cheyenne), 3,700 hours; LTC Robert W. Wood, Aviation Materiel Testing Directorate, 3,300 hours; LTC Marvin H. Dorr, Infantry Materiel Testing Directorate, 2,700 hours; LTC Richard A. Humes, Aviation Materiel Testing Directorate, 2,700 hours; and LTC Thomas G. Ziek, Aviation Staff Officer, 2,700 hours.

Current Events



THE COVER WAS LOOSE

A female press operator was performing her regular work of operating a second draw double reduction press. Without warning, the top cover of the press vibrated free, fell about 25 feet and struck the woman's head.

Her worst injuries were diagnosed as a possible skull fracture and the fracture of three cervical vertebrae. Scalp lacerations required 16 stitches. Her dentures were broken in several places. She suffered severe pain upon motion. "Tongs were inserted in the head to apply neck traction." She was expected to be away from work six months.

Investigation revealed that maintenance personnel had made adjustments on the press about a week earlier. A conclusion was reached that upon completion of their work the top had not been properly replaced on the machine. The cover contained 18 apertures for fastening bolts. Apparently no bolts had been fastened.

It was made clear to the repairmen's supervisor that the failure to secure the press cover was gross negligence. He was advised of the absolute necessity for checking completed jobs to insure that repaired equipment was safe to operate.



TWO WORKERS SCALDED

At one stage of operations at an ammunition plant hot water was collected in a sump. The liquid was then transferred to a tank truck for removal to another location.

A storage operator was helping with the transfer of the water to the tank truck. After a reasonable period of time passed, he checked the water level in the tank and then turned to move away from the opening. At this moment a surge of pressure caused the end of the sump line hose to twist and to fly out of the tank opening. A stream of steam and hot water struck the man on his buttocks, thighs and upper calves. He received first and second degree burns and was expected to be away from work for 21 days.

The sump pump was overhauled in an effort to prevent any similar accident. The pump was equipped with new jets and a longer hose line.

Three weeks later a truck driver was transferring hot water from the sump into a tank truck. He undertook to check the level of the water in the tank. Again a surge of pressure caused the end of the line to twist and to fly out of the opening. Steam and hot water inflicted first and second degree burns on the man's hands and the front part of his body from his waist to his knees. He too was expected to be away from work for 21 days.

The following actions were taken to prevent any similar incident during the hot water transfer operation:

1. A rigid metal pipe was installed on the discharge line as a replacement for the rubber hose.
2. All sump trucks were equipped with float valves to register the liquid level in the tanks. Visual inspection would no longer be necessary.
3. A new reducing valve was installed on sump pumping equipment to eliminate the possibility of excess pressure.



RIGHT-OF-WAY CONTESTED ON TRACK 25

Vegetation on the plant railroad right-of-way was controlled by a weed spraying operation. The spraying was done with a unit equipped with a 750-gallon tank for the solution and mounted on the front of a railroad car.

Before starting on the operation this day the weed spray crew supervisor requested oral clearance from the radio dispatcher for rail traffic. The spraying was to be done on track 32. Clearance for operating on this track was obtained. The crew then boarded the motor car and departed for their work. At this time the crew's contact with the dispatcher ended, because the motor car was not equipped for radio communication.

Early in the afternoon a locomotive engineer received clearance from the dispatcher to proceed along track 25. He then drove his locomotive down the track, pulling one boxcar loaded with ammunition.



As the locomotive approached a curve, moving at 10 miles an hour, the engineer saw the spray rig motor car coming down the track toward him. He immediately applied his emergency brakes and sander. The motor car operator saw the locomotive and also tried to stop. It was too late and a collision occurred.

At the time of impact the locomotive had slowed to about two miles an hour. The speed of the motor car was then about five miles per hour. No damage was done to the locomotive, but the weed car sprayer received about \$1,500 damage. The five men in the spraying crew jumped off the car about 15 feet before the point of impact and escaped injury.

The plant revised its railroad operating procedures. The operators of railroad motor cars were required to obtain clearance from the railroad dispatcher, via field telephone, before entry or movement from any track.



HE MOVED ON TO A HOT ONE

A journeyman electrical lineman, working with a helper and using a bucket line truck, was replacing deteriorated crossarms. The lines in the immediate work area had been de-energized.

The lineman replaced crossarms on two poles, as he had been directed to do by his supervisor. He then decided to continue down the line to change other deteriorated crossarms he could see. As he proceeded to do this, he failed to notice that he passed the open air-break switch which isolated the de-energized section of the electrical system.

A crossarm he selected to change was one which supported an energized 4160-volt line and a series street light circuit. While he was removing the wires from the insulators in preparation for removing the crossarm, he shorted the neutral and one phase conductor with his right hand. A 2400-volt current passed through the palm and back of his hand.

The lineman was taken to first aid and then to a doctor for treatment. On the following day he was able to return for assignment to regularly available duties which he was qualified to perform. A few days later he entered a hospital for reconstructive surgery on his hand.

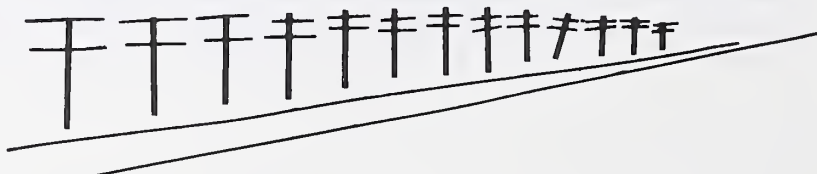
Vigorous action was taken to prevent accidents by personnel engaged with electrical services.

1. A thorough investigation was conducted, and a conference was held to give emphasis to management's concern for the accident.

2. Arrangements were made for the top supervisor in the Utilities Division to attend the next Electrical Branch safety meeting. He discussed the accident and emphasized compliance with all rules for electrical safety.

3. The injured employee's statement of qualification for work on energized lines was revoked. He was issued another copy of TM 5-682 and its current changes. He was told he had 15 days to study the manual after his return to duty. He would then be required to pass a written test before removal of the suspension of his statement of qualification to work on energized lines.

4. Explicit instructions were issued to supervisors on compliance with safety rules in accordance with TM 5-682. It was made clear that violations of the safety rules would result in adverse actions.



DEMONSTRATION FAILED TO CONVINCE WORKERS

A contractor was performing roofing work at an Army installation. The old roof decking consisted of a badly deteriorated gypsum board on 2-foot center supporting joists. The project superintendent briefed all contractor personnel on the condition of the decking. His briefing included a demonstration of the results of applying weight directly on the gypsum board between the supporting joists.

The contractor's employees began the job. They were furnished sheets of five-eighths inch plywood to spread on the roof for support while they worked. Soon after the morning's work began one of the workmen walked off the plywood on to the roof. His weight came to bear on a spot between joists, and the gypsum board collapsed beneath him. He fell through the roof and landed 16 feet below on a concrete platform.

His injuries included a fractured vertebra that was expected to keep him away from work for 10 days.

The contractor's supervisory personnel provided assurance that intensive safety briefing would be given to all employees and that safe work practices would be enforced.

A few days afterwards a second worker stepped off the plywood on to the gypsum board. He also broke through the roof and fell 16 feet to a concrete dock. His injuries included fractures of his right arm and eight ribs on his right side. He was expected to be disabled for 90 days.

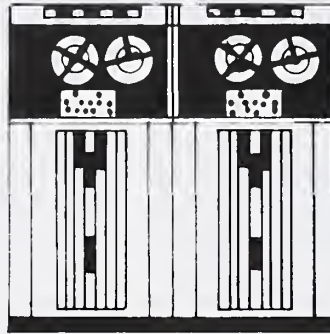
The roofing operations were discontinued for the next day until more accident prevention controls could be put into effect. A meeting was held with the contractor's officials, the contractor's insurance district engineer, the installation safety director, a Post Engineer representative and a representative of the installation's contracting officer. The following actions were then taken by the contractor:

1. Exposure of his employees to the uncovered roof was reduced to a bare minimum.



2. Plywood as a support surface was used in all work areas to cover exposed gypsum. The workers were required to perform all work off the edge of the plywood.

3. All unsound roof areas were roped off. This was intended to prevent workers from inadvertently stepping off the plywood footing onto an unsafe section.



PROTECT YOUR COMPUTER FROM FIRE

The computer is likely to be one of the most expensive items of equipment at your installation. Any extensive damage to the machine or its associated software might cause serious disruption to the accomplishment of your mission.

How good is the fire protection provided for your computer?

The Federal Fire Council, Washington, D.C. 20405, has issued a helpful publication on the subject. Entitled "Fire Protection for Essential Electronic Equipment", it is a July 1969 revision of the Council's Recommended Practices No. 1.

Other helpful publications are AR 420-94, "Fire Protection for Electronic Digital Computers", and Chapter 4, "Installation and Critical Materials", AR 385-90. Useful suggestions for recovering damaged records are contained in the Federal Fire Council's Recommended Practices No. 2, "Salvaging and Restoring Records Damaged by Fire and Water"



Editor's Note - See also the article in the November 1967 Safety Digest, "First, Install the Protection".

MAKE PROPER USE OF ADJUSTABLE HEADREST

Jody D. Meredith, Safety Director
Riverbank Army Ammunition Plant

It has been recognized for a long time that whiplash injuries frequently result from rear-end automobile collisions. It took time to convince regulatory authorities and manufacturers that the use of headrests might almost eliminate whiplash. A requirement was finally adopted to make it mandatory for all automobiles sold after 1 January 1969 to be equipped with headrests as well as seat belts and chest harnesses.

There has been a problem of getting drivers and passengers to use the protection provided by their seat belts and chest harnesses. Now there is an additional task of persuading them to make proper use of their adjustable headrests.

If these are not adjusted to a height suited to the driver, the headrest could be a hazard. When the rest is in down position, it might be at the right point of contact with the shoulders or neck of the driver to cause his head to snap at the axis of the neck in a sudden stop or crash. This would result in a whiplash injury.



Not adjusted



Properly adjusted

Because people come in so many shapes and sizes it is common for the good driver to make the following adjustments before he starts the engine:

1. He adjusts the seat.
2. He fastens the seat belt and harness.

3. He adjusts both inside and outside mirrors.

For the driver of a vehicle equipped with adjustable headrests one more item should be included. He should adjust the height of his headrest. Then if a rear-end collision should occur, the headrest should provide the protection for which it is intended.



MERDC PERSONNEL WIN NSC SAFE DRIVER AWARDS



National Safety Council awards for safe driving for periods of from one to 19 years have been awarded to six drivers at the US Army Mobility Equipment Research and Development Center, Fort Belvoir, Virginia.

Colonel Russell J. Lamp, then Commanding Officer, presented the pins and cards to Frizello O. Givens, Perry W. Gilliam, Henry L. Hayes, Calvin T. Bushrod, Isaac Kelly and Ernest L. Womack.

Mr. Givens received the 19-year safe driving award. He is one of the drivers often involved in long distance driving.

Mr. Hayes and Mr. Gilliam each received 9-year safe driving pins, while Mr. Bushrod received a three-year pin and Mr. Kelly and Mr. Womack each received one-year pins.





WORKERS' HANDS MAY SHOW SAFETY PROGRAM WEAKNESS

The following entries were extracted from the Hospital Daily Log Sheet for one day at an AMC ammunition manufacturing plant:

"Cut left hand; pulling down handle on cutting machine.

"Cut right ring finger; opening water valve and caught finger underneath board.

"Cut left little finger; unloading press, pinched finger between safety bar and press bar.

"Bruised right little finger; pressing powder and bumped finger on a lever.

"Cut right thumb; pounding powder out of ram, hit thumb on the ram.

"Puncture wound to right thumb; pushing powder back with rake, piece of steel from handle in thumb.

"Cut right middle finger; checking gear box and bumped finger against a gear.

"Bruised right middle and ring fingers; had hand on window sill and window fell down.

"Bruised left ring finger; pushing buggies, caught finger between buggy and door.

"Small cuts on both palms; from handling screens."

These relatively minor hand injuries made up almost 60 per cent of the new occupational injuries treated that day. The plant's safety services superintendent brought the following comments to the attention of supervisory personnel:

1. Elimination of all or even half of these injuries would have prevented much discomfort and would have substantially reduced lost production time.

2. Wearing the proper type of gloves might have prevented many, but not all of these hand injuries.

3. Providing protective items such as gloves is only half of an accident prevention effort. The employee must use the items, and the supervisor must be alert to make certain these items are utilized properly.

4. Preventive maintenance is a continuous function. It should be accomplished before its need becomes mandatory because of an injury.

5. Alertness for hazards, timely submission of work orders for needed maintenance and follow-up as required would reduce the number of occupational injuries.



GOOD HOUSEKEEPING PREVENTS INDUSTRIAL FIRES

Safety Office, Thiokol Chemical Corp., Huntsville Division
U. S. Army Missile Command

The National Fire Protection Association has listed in one of its fire inspection forms the statements which follow. The statements really tell the story:

"We have a very clean Plant.

"There are a few places where things need to be cleaned up.

"Too many evidences of poor housekeeping.

"Boy, what a mess!"

Which of the foregoing would you check for your work area?

Cleanliness and orderliness are the best measure of fire prevention.

Keep dirt or rubbish from under benches, in closets, behind radiators, in pits, or in any other part of your work location.

Work and supply rooms should be thoroughly cleaned up at closing time.

Only approved type safety cans should be used to contain flammable liquids.

Equipment should be properly maintained and kept in a clean condition.

ARE YOU REACHING YOUR PEOPLE WITH SAFETY PROMOTION?

Earl L. Markwell
Safety Officer, Savanna Army Depot

The implementation of a successful safety program requires a thorough knowledge of safety rules, regulations and standards. This knowledge, combined with strict compliance with the rules, can yield safe and efficient operations.

There are times, however, when these guidelines of safety are ineffective.

Safety promotion is very much like teaching, because you are trying to get your point over to people. Imagine yourself as a safety teacher who has a thorough knowledge of all the necessary rules to make your operation safe and efficient. You may even be capable of reciting your material word for word. But if you make your presentation in an empty room, who have you impressed besides yourself?

Far too often this is the case with safety talks. Just because your room is filled with a captive audience does not mean that your message is reaching the people. Beware of a safety promotion program that is successful only on paper. To succeed we must talk to the people - not at them.

People are not like computers that require only information to perform and produce the desired results. There are many ways to approach people and obtain positive results. Whatever method you choose, make sure that you're reaching the people with your message instead of wasting their time and your own time and effort.

Rapport is of utmost importance in dealing with people. If they trust you and accept your opinion, your task will be much easier. Make yourself and safety a friend of the people instead of a watchdog to be avoided. Periodic casual conversations with employees should establish this needed positive relationship.

Another important aspect of safety training is proper timing. Your material should apply to the appropriate time of the year. Don't bore employees by showing a winter driving film in July.

When planning a formal training session there are many things to consider if you are to be successful. You should ask yourself questions such as these:

1. Does the material apply to the specific group? Is it useful?
2. Are your visual aids really aids or merely an assembly of pictures and graphs to be used as a crutch?
3. What are the ventilation and lighting conditions of the room?
4. Will the class participate in the instruction and discussions? Or are you going to bore your audience by reading an endless stream of rules and regulations?
5. Will you explain "why" and "how", or just throw your information and hope someone catches it?
6. Would you enjoy this presentation if you were the employee.

Make up your own list of questions to ask yourself. Many times these will reveal you have forgotten something in your planning which could make your program much more effective.

Your safety promotion program must reach the employee. You are dealing with people, not machines. They do not have to accept your ideas. It is your task to make them want to listen. If you talk to people and not at them, the results will be very rewarding.



EXPLOSIVES

SAFETY



Explosives

Safety

DEALING WITH NEW EXPLOSIVES MIXTURES

IN RESEARCH LABORATORIES

Laboratories performing explosives research are formulating novel compounds and mixtures in order to obtain properties required for new weapons systems. Although experience with many of the materials being used is lacking, experimentation can be performed safely by following procedures of long standing. Below are some pertinent safety precautions which are applicable to Army Materiel Command research laboratories.

When extreme reactivity is suspected, milligram quantities of explosives should be mixed carefully behind an operational shield. If no reaction is noted, the simple match flame test, impact test, and explosion temperature test should be employed. Very often, one can predict the approximate impact sensitivity of a mixture and thus, roughly classify its stability.

Before preparing sizeable amounts of a mixture by processes which are known to increase sensitivity, such as heating, a sample should be subjected to a 100 degree Centigrade heat test to indicate the compatibility of the mixture components. One must also have a thorough knowledge of the sensitivity and thermal stability of each component. Sometimes a simple screening test can be performed, in which a minute sample is heated in a long test tube and the magnitude of the reaction observed. The results of such a test should, however, be carefully interpreted, taking into consideration the ultimate composition and potential energy output of the system.

If more than one step is involved in the preparation, the hazards involved in each step should be considered. When so much as milligram quantities of a hazardous material are being studied, proper protective equipment should be used.

The results of preliminary sensitivity and stability tests give a reasonably reliable basis for deciding whether an experimental explosive composition should be further evaluated. They will also provide a better understanding of the proper safety precautions to be observed in the preparation of additional quantities. If further evaluation is considered desirable, a slightly larger, but still small, quantity is prepared for such tests as:

1. Sand test for: a. Brisance; b. Sensitivity
2. Hygroscopicity test
3. Volatility test
4. Friction pendulum test

A careful study of all the above test data should enable the research chemist to determine the proper method of preparing and handling the experimental composition. Having these data, still larger quantities may be prepared for the following tests:

1. Rifle bullet impact sensitivity test
2. Plate dent test
3. Rate of detonation test
4. Fragmentation test
5. Ballistic mortar test

The following general rules should be observed when preparing or handling any experimental HE composition.

1. Never keep more explosives in a room than is necessary.

2. Never exceed the explosives allowance specified for one room.

3. Never keep explosives in a room overnight unless conditions require their presence. For overnight operation, notify your supervisor and the safety office. Post the name and home telephone number of the person performing the operation, and make certain that a large sign is displayed bearing the words "HIGH EXPLOSIVES" and "DANGER".

4. Explosives and corrosive materials should be transported in approved carriers only.

5. Avoid using initiators and high explosives in the same room.

6. Avoid heavy impacts of any sort.

7. Use rubber containers for the dry-blending of explosives when such an operation is necessary.

8. Use only air-driven stirrers, or other approved explosion-proof types for molten explosives or flammable solvents.

9. Never melt castable explosives directly on a hot plate. Use a steam bath or suitable heating jacket.

10. Dry explosives compositions exhibiting a high degree of sensitivity should be stored in small quantities in conductive rubber containers. Any large quantities should be stored wet, with solvent or water, whichever is applicable.

11. A molten high explosive normally is more sensitive than its solid and should be handled with greater care.

12. Hoods should always be used when melting TNT, evaporating solvents, etc.

13. Avoid conditions which tend to accumulate static electricity.

14. Never use screw-cap bottles or ground-glass-stoppered containers for explosives, even if the joint is on the outside.

15. Operations requiring the grinding of explosives should be conducted with special care, and only after some indication of the sensitivity of the material is known. Grinding should be done behind an operational shield. A pestle flash shield should be used wherever possible. The operator should wear gloves to provide additional protection for his hands.

16. Portions of experimental composition considered to be of no further value should be destroyed, rather than permitted to accumulate in a magazine.

It may seem to you that some of these precautions are unwarranted, since the quantities of explosives used in laboratories are intentionally very small, and should be kept that way! Do not be misled as to their danger potential. It's much better to have the protection and not need it, than to need it and not have it!

* * *

WHITE PHOSPHOROUS INJURY AVERTED

Safety Office
Rocky Mountain Arsenal



A maintenance worker at Rocky Mountain Arsenal was opening a flanged joint in a white phosphorous supply line to replace a worn gasket. It was thought that no WP was in the line since it had previously been purged. When the man attempted to open the flange with a screwdriver after loosening the securing bolts, WP spurted out and splattered the worker's legs.

Analysis of the incident revealed that the flanged joint was located at a low spot in the line and an accumulation of WP had settled there. Upon contact with the air and under slight pressure the WP flashed out.

Fortunately, both the worker and his assistant were fully clothed in protective suits, as well as boots and full face shields. This type of suit worn is made of a specially treated impervious material which is self-extinguishing. In the photograph above, Paul Closuit, Arsenal Safety Officer, points out the affected area on the protective suit. The incident vividly portrayed the value of protective clothing in the prevention of an injury from searing, corrosive chemical agent.

* * *

SAFETY LEADER AWARD PROGRAM

Ross F. Dalton
Safety Department, Sperry Rand Corporation
Louisiana Army Ammunition Plant

Promotional programs come and go. Like an old pair of shoes, the day finally comes when they wear out and have to be replaced.

In keeping with this principle, we have replaced a lot of "old shoes" at Louisiana Army Ammunition Plant, a government-owned munitions facility, contractor-operated by the Sperry Rand Corporation. The plant employs approximately 7,000 persons in operations that include steel forging and explosives loading. The importance of safety consciousness can be readily seen; therefore, we are continually seeking more effective programs in promoting safety awareness.

One of our safety programs here has proved itself an exception to the come and go rule. It has grown stronger with age.

This perennial returnee to the lineup is our Monthly Safety Leader Award Program, which was started in the fall of 1966. With some slight modifications, it has become an established favorite.

Why has this program turned out to be a long-distance runner while most other promotional safety programs are good for only the short dash?

To answer this question properly, it is necessary to examine each part of the program in relation to the basic human motivational influences of recognition, reward and appreciation. Other aspects that have to be considered are the ease of administering the program, the degree of cooperation required from participating departments, cost and finally the question: Does the program achieve its intent and purpose? In the case of the Monthly Safety Leader Award Program, we feel that it has all of these qualities.

This program is designed to promote employee interest in safety and to give monthly recognition to selected hourly (non-supervisory) contractor employees from various plant activities. Each month foremen in the participating departments nominate two employees, a principal and an alternate, from his area to be considered as the department's monthly safety leader. A committee in each

department, composed of middle management personnel and the Area Safety Inspector, selects a winner from the list of nominees.

The criteria used in selecting the winner is constant. He must demonstrate above average job performance with no unauthorized absences within the month. He must have had no first-aid injuries during the month, on or off the job. There must have been a minimum number, if any, of safety discrepancies detected in his work area for the period under consideration. He must demonstrate above average safety leadership. (Consideration is also given to such matters as housekeeping, interest in the Area Safety Program and cooperation in matters pertaining to safety.)

The individual awards are presented during a ceremony held monthly in the main cafeteria of the plant. Those attending are each safety leader with his immediate supervisor, the General Manager, and the Division Managers concerned.

Refreshments are served and the General Manager gives a short congratulatory speech in which he stresses the company's appreciation of the excellent example set forth by the selected Safety Leaders. Each safety leader and his supervisor is congratulated by his division manager and the General Manager.



PHOTO 1



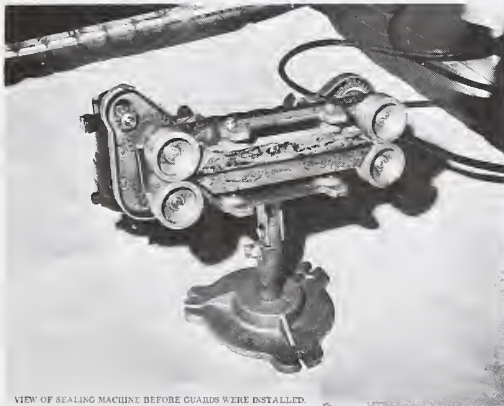
PHOTO 2

The Safety Leaders are presented a framed, signed certificate, a gift (approximately \$5 value) and the right to park their automobiles in a reserved parking space for a month in their work areas. Several photographs are taken during the ceremonies and are later published in the plant newspaper with a complete write-up. Prints of the photographs are given to each safety leader. Additional prints are displayed in the employee's work area and at other strategic locations throughout the plant.

Through these procedures, the basic human needs of recognition, reward and appreciation are achieved, and the program is a success.

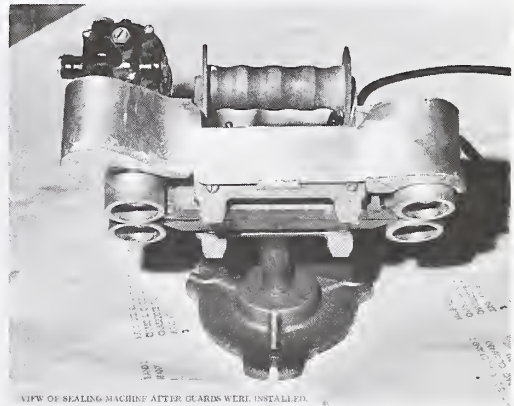
A key factor in the continuing success of this program has been the cooperative response of management. Their interest in the program, and their willing participation in the recognition phase lend an element of respectability and importance that keeps interest high among the employees. It is this same management response that enables us to keep alive an effective overall safety program, helping us get many extra miles of wear from our "old shoes".

MACHINE BITES WORKER



VIEW OF SEALING MACHINE BEFORE GUARDS WERE INSTALLED.

PHOTO 1



VIEW OF SEALING MACHINE AFTER GUARDS WERE INSTALLED.

PHOTO 2

A depot employee, working on a packing process line, reached across the table to grasp a sealing machine. The employee's left little finger came in contact with the exposed drive gear of the sealing machine. The employee's finger might have been amputated had not another employee been close by who immediately disconnected the machine from the electrical power source.

This machine is designed for portable use or can be mounted on a stand for stationary use. It is a dandy machine, however as is the case so many times, the SAFETY GUARDS were omitted by the manufacturer.

The above photographs of the Doughboy Sealing Machine FSN 3540X000901 depicts the before and after SAFETY GUARDING of the machine to prevent the recurrence of a similar or more serious injury.

DANGER! HIGH TENSION LINES

Leonard C. Heinrichs, Safety Engineer
U. S. Army Mobility Equipment Command

Accidents that involve high voltage occur without warning and are usually fatal. The severity of the accident depends on such factors as the amount of path of the current through the body, the length of time the victim is exposed to the current, the physical condition of the victim, and the atmospheric conditions existing at the time of contact.

Operation of cranes, crane shovels, draglines, and similar equipment near electric power lines is potentially hazardous. Operators and outside linemen must be constantly aware of the danger of encroachment of any part of their equipment with electric power lines.

The following are three procedures, one of which must be followed before operations begin near overhead power lines:

1. Make certain that power has been shut off and take positive action to prevent lines from being re-energized.

2. Position and block equipment to assure that no part of the equipment, including cables, can come within the minimum required clearances specified below:

<u>POWER LINE NORMAL SYSTEM*</u>	
<u>Power Line Normal System</u>	<u>Required Minimum Clearance</u>
Under 69 KV	10 Feet
69 KV	12 Feet
115 KV-161 KV	15 Feet
235 KV-285 KV	20 Feet
345 KV	25 Feet
500 KV	35 Feet

*EM 385-1-1, Safety, General Safety Requirements.

3. If encroachment on specified minimum required clearances in 2 above is required, provide a dielectric boom shield and insulating link for protection against line voltages at the work area.

Boom shields with higher protective capabilities against line voltages and other types of effective warning devices are at present in the research and development phase. While awaiting the results of this research, additional precautions relative to safety should be emphasized. The following suggestions will help to keep these dangers foremost in the minds of responsible personnel at all times:

1. Only designated personnel should be permitted to operate the equipment.

2. Operators must have no physical defects that may interfere with their work performance, have good hearing and eyesight, and be able to distinguish readily the colors red, green and yellow regardless of their position.

3. Whenever possible, all equipment should be grounded.

4. When equipment is moving between work areas, safety practices must be enforced. Riding on equipment or loads should be prohibited.

5. If accidental contact is made with a power line and fire or other factors prevent the operator from remaining on the equipment, he should jump, making sure all parts of his body are clear of the equipment before his feet touch the ground.

6. Operators should know how to use the fire extinguishers that are provided.

7. Maintenance safety checks should be made at scheduled intervals to insure the safe operating condition of the equipment.

8. A standard signal system should be used for all hoisting operations. Signals must be understood by both operator and ground personnel.

Accident prevention cannot be entirely dependent on protective devices. To minimize the accident potential, everyone involved must be cognizant of the inherent dangers and govern himself accordingly.

It is the Commander's responsibility to assure that his operating personnel are aware of the dangers involved in this type of operation. Effective operator training in basic safety practices should be scheduled periodically and records of this training kept on file.


When enforced, these suggestions and safety rules will help safeguard the operator's life, set an example for all workers and secure respect for the hazards that are inherent in equipment operation.

* * *

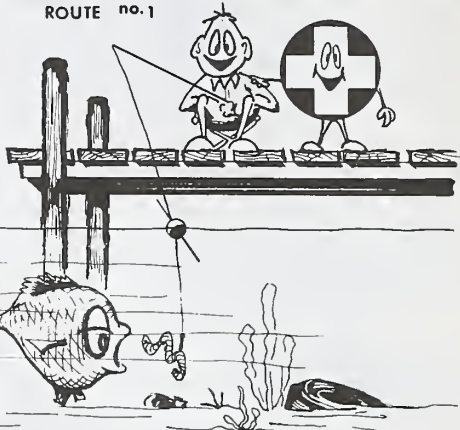
SAFE WORKER NO. 1


- No lost time
- Job security
- Better attitude
- Steady PAYCHECK

NO PAIN or WORRY



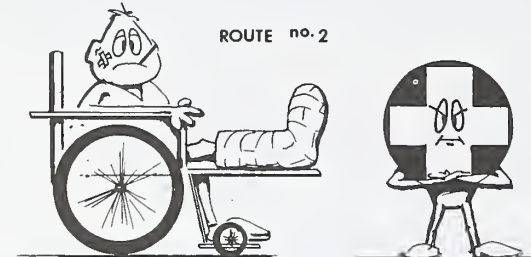
ROUTE no. 1





WHICH ROUTE ARE YOU TAKING ?
IF YOU'RE NOT SURE ?
STOP - EVALUATE & TAKE ROUTE no. 1
THIS CO. NEEDS SAFE WORKERS...

ROUTE no. 2



UNSAFE WORKER NO. 2

- Lost time
- Disabling injuries/ FATALITIES
- Poor production
- Limited PAYCHECK

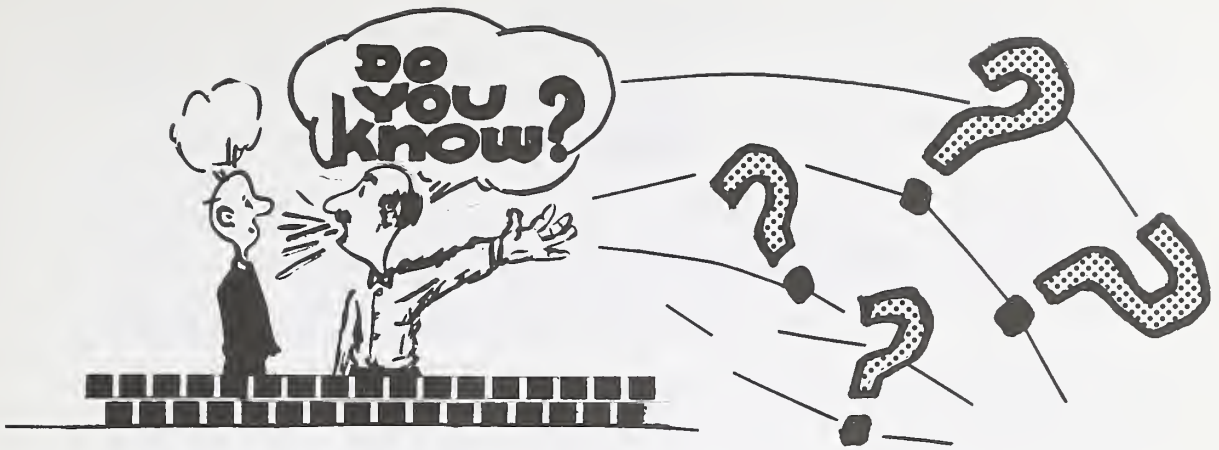
PAIN & WORRY

SAFETY POSTER

Mason & Hanger - Silas Mason Company, Inc.

* * *





Here are ten questions that will test your knowledge of safety requirements that you will need under different circumstances. The answers to all of them may be found in AMCR 385-224. How many can you answer without referring to the regulation? The correct answers and references appear on pages 44 and 45.

1. Do nontoxic chemicals require less washing facilities for workers than toxic chemicals?

Answer and reference:_____

2. Is there a requirement that washing and toilet facilities at Army installations meet any rules other than those established by the Army?

Answer and reference:_____

3. Are fragmenting heads used on rockets during proof firing from airplanes?

Answer and reference:_____

4. If a portable bombproof is used for fire observation, where should it be located?

Answer and reference:_____

5. If Lewisite should be destroyed by burning, would there be any hazardous atmospheric contamination?

Answer and reference:_____

6. What liquid should be used to clean a black powder pelleting press?

Answer and reference:_____

7. Is there any difference between methods that should be practiced in storing small ropes and large ropes?

Answer and reference: _____

8. How hot should the temperature be before a feeding conveyor is used to move contaminated sump cleanings into an explosive scrap incinerator?

Answer and reference: _____

9. What is the maximum number of aboveground magazines permitted in a single block?

Answer and reference: _____

10. In the hazard grouping of liquid propellants what distinct characteristic is associated with those which belong in Group II?

Answer and reference: _____

* * *

VISION AND NIGHT DRIVING

Your vision will improve 20 to 30,000 times if you wait a few minutes before driving off into the dark'. Fantastic? "Yes, but true," says the British Association of Optical Practitioners.

Although it takes about 15 minutes for a driver's eyes to accustom to the dark, few motorists wait 15 seconds. They come out of a lighted building, jump into the car and drive off. They are, in fact, partially blind.

Why wait? A special substance, sensitive to low illumination, must build up in the back of the eye; this substance is bleached out by the light -- so even as your eyes accustom to the dark, oncoming headlights represents five to seven seconds more delay in gaining full night vision.

For minimum safety, 17-year-old drivers should wait two or three minutes, and 60-year-olds at least five minutes to accustom their eyes to the dark. But remember, it takes 15 minutes to gain your full see-in-the-dark power.

Safety Review, Safety Div., Navy Material Cmd, ND, Wash., D.C.

AMC DEPOTS



It's a long way from an Army Depot in New Cumberland, Pa., to the fierce fighting that is taking place today in the mangrove swamps of Vietnam.

But it is back at the depot where it all begins. Through the Army depots flow the equipment, spare parts, and ammunition that make the soldier fighting in those mangrove swamps the effective defender of U.S. national policies.

New Cumberland is only one of 19 depots that receive, store, issue and provide maintenance support for Army Materiel Command's thousands of weapon, equipment and supply items.

The coast-to-coast system of depots fills an average of 500,000 individual requisitions a month from users of AMC materiel throughout the world. That means that every seven seconds, day and night, 365 days a year, someone in a depot somewhere in the U.S. picks, packs, and ships some needed item to a soldier guarding America's freedom somewhere around the globe.

The AMC depots range from compact complexes of offices, warehouses, laboratories and maintenance shops near urban centers to huge isolated installations with thousands of acres for open storage. The number of employees varies from few as 325 to as high as 6,500.

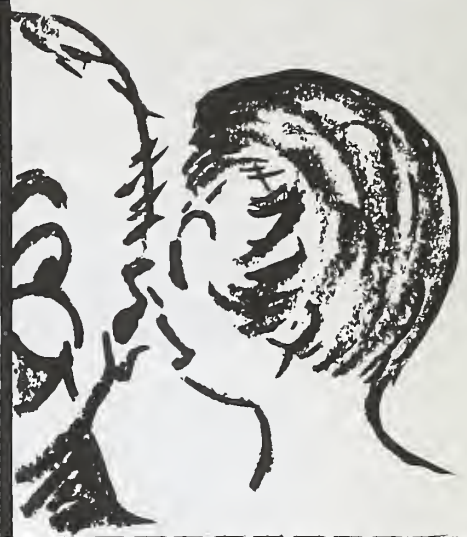
At last count there were over a million tons of supplies and more than two million tons of ammunition stored in AMC depots. The entire depot system's FY '69 budget was approximately \$800-million.

The organizational structure of a typical AMC depot consists of a Directorate for Administration, Comptroller Directorate, Directorate for Data Systems, Directorate for Services, Directorate for Supply and Transportation, Directorate for Maintenance, and a Directorate for Quality.

* * *



Well,
did you know?



Here are the answers to the questions on pages 41 and 42. All questions were based on information contained in AMCR 385-224. A reference to the pertinent paragraph follows each answer.

1. Yes. The requirements are much less stringent. If the chemicals are not toxic one wash basin for ten workers should be provided. If the chemicals are toxic there should be a wash basin for each five workers and a shower for each seven persons. Reference: Paragraph 1113 and Table 1113.
2. The design and construction of all washing and bathing facilities, toilets and toilet facilities should fulfill all requirements of local plumbing codes and local health departments. Reference Reference: Paragraph 1113 and 1114.
3. All rocket firing conducted from an airplane shall be with only practice loaded and nonfragmenting heads. Reference: Paragraph 2823d.
4. All portable bombproofs used for fire observation should be offset from the line of fire and located on the gun side of impact. A line perpendicular to the line of fire and passing through the impact is the dividing line between the gun side and the down range side of impact. Reference: Paragraph 2821c.
5. When Lewisite is destroyed by burning, arsenic oxide is liberated. If Lewisite is burning in open pits, the surrounding atmosphere may become hazardously contaminated. Reference: Paragraph 2730a.

6. Water used on dampened rags should be used to clean black powder pelleting presses.
Reference: Paragraph 2617f.
7. Small ropes should be hung in loose coils, and large ropes should be coiled on gratings raised from the floor.
Reference: Paragraph 909a.
8. The feeding conveyor shall not be operated until the furnace temperature has reached 1600° - 1800°F., as indicated on the thermometer recording device in the feeder building.
Reference: Paragraph 2728b(2).
9. Not more than 100 aboveground magazines are permitted in a single storage block.
Reference: Paragraph 1710a(2).
10. Materials in Group II are strong oxidizers. Serious fires may result when they come into contact with materials such as organic matter, which is difficult to exclude.
Reference: Paragraph 1506b.

* * *

REFERENCE PUBLICATIONS

AR 95-1 12 Sep 69	Aviation - Army Aviation-- General Provisions (Aviation safety is covered at considerable length in this regulation.)
AMCR 385-102 Sep 69	Safety - Safety Regulation for Chemical Agents GB and VX
AFP 161-20 TB MED 281 NAV FAC P 381	Aerospace Medicine - Environmental Health Engineering Handbook - Water Pollution
TM 5-1300 Jun 69	Structures to Resist the Effects of Accidental Explosions
DA Cir 385-23 2 Oct. 69	Safety - Cost of Accidental Nondisabling, Disabling Nonfatal and Fatal Injuries to Army Personnel

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